UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,898	02/14/2002	Ju-Il Lee	P56604	6719

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EXAMINER
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ART UNIT	PAPER NUMBER
2651	

DATE MAILED: 05/28/2004   6

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _05 May 2003_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _4&5_.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 14 is objected to because of the following informalities: the word "step" is

mistyped in claim 14. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims (1-20) are rejected under 35 U.S.C. 102(e) as being anticipated by Kang

et al (6441988).

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome

either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the

invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 14: Kang et al discloses a seek-servo procedure including the steps of:

providing a head (element 16 in figure 1 of Kang et al) in a hard disk drive (as element 10 depicted in figure 1 of Kang et al), and moving the head to a desired track location using an acceleration command having a target acceleration which leads a target velocity and a target position by a predetermined time (in col. 3, lines 41-61 where Kang et al describes the detection of the head in a given position or speed or arrival time at the desired location on the surface of the disk).

Regarding claim 15: Kang et al teaches that wherein the predetermined time includes the time that it takes to compute the acceleration command and the time that it takes to vary the torque of the head in response to the computed acceleration command (in col. 2, line 61 to col. 3, line 4 and col. 4, line 60 where Kang et al describes the computed and compensated VCM command value for generating the proper torque to move the arm across the disk in a given seek time or the predetermined time frame per a given command).

Regarding claim 16: Kang et al teaches that wherein the acceleration command is obtained by subtracting a feedforward acceleration of the head from a result of adding a velocity correction value to the target acceleration, and wherein the feedforward acceleration of the head is estimated based on the acceleration command and position information concerning a position of the head moved (in col. 3, line 62 to col. 4, line 19 of Kang et al).

Regarding claim 17: Kang et al teaches that wherein the velocity correction value is obtained by adding a position correction value to the target velocity, subtracting an estimated actual velocity of the head from a result of adding the position correction value to the target velocity, and proportionally integrating a result of subtracting the estimated actual velocity of the head from a result of adding the position correction value to the target velocity; and wherein a position correction value is obtained by subtracting an estimated actual position of the head from the target position and proportionally integrating a result of subtracting the estimated actual position of the head from the target position; and wherein an actual velocity and an actual position are estimated based on an acceleration command output and a position information output (in col. 3, line 52 to col. 4, line 60 of Kang et al).

Regarding claim 18: Kang et al teaches that wherein the target acceleration is derived by the equation:

$$(a.sub.w)(n + 1) = ((2pi * X.sub.sk) / (Nsq. .sub.sk *Tsq. .sub.sm)) * (sin * (2 pi *(n + 1))/ (N .sub.sk))$$

where $(a.sub.w)(n+1)$ represents the target acceleration, n represents a servo sample number, X.sub.sk represents a seek length, and N.sub.sk represents a seek time per a sample (in col. 5, lines 9-33 where Kang et al describes the noted equation (equation #6)).

Regarding claim 19: Kang et al teaches that wherein the target velocity is derived by the equation:

$$v.sub.w(\ n\ ) = ((X.sub.sk)/((N.sub.sk)*(T.sub.sm)))) * (1 - \cos ((2pi*n)/(N.sub.sk))$$

where v.sub.w(n) represents the target velocity and T.sub.sm represents a servo sampling time (in col. 5, lines 9-33 where Kang et al describes the noted equation (equation #7)).

Regarding claim 20: Kang et al teaches that wherein the target position is derived by the equation:

$$y.sub.w\ (\ n\ ) = ((((X.sub.sk)/(N.sub.sk))* n) - (((X.sub.sk)/(2\ pi))* (\sin ((2*pi*n)/(N.sub.sk)))))$$

where y.sub.w(n) represents the target position (in col. 5, lines 9-33 where Kang et al describes the noted equation (equation #8)).

Regarding claims 1-13: apparatus claims (1-13) are drawn to the apparatus corresponding to the method of using same as claimed in claims (14-20), and are rejected for the same reasons of anticipation as used above.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kobayashi et al (5936792), Aralis et al (6005363), Gopinathan et al (6268765) and Ell (6563665) are cited for double integrations or integrators in a disk drive.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Wong whose telephone number is (703) 305-7772.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Hudspeth can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

kw

25 May 04

DAVID HUDSPETH
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